J. R. Baker,

Sash Balance.

No. 48,889. Patented July 25, 1865.

Fig. 1

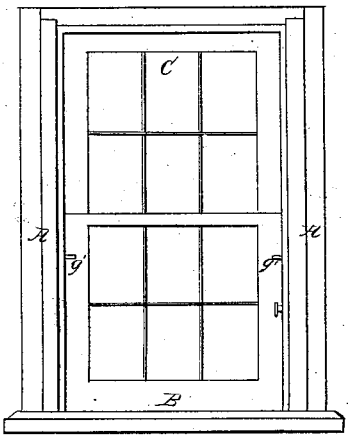


Fig. 2

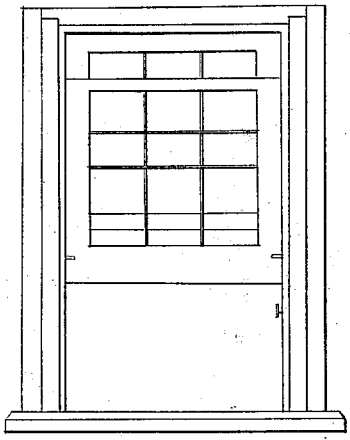


Fig. 3

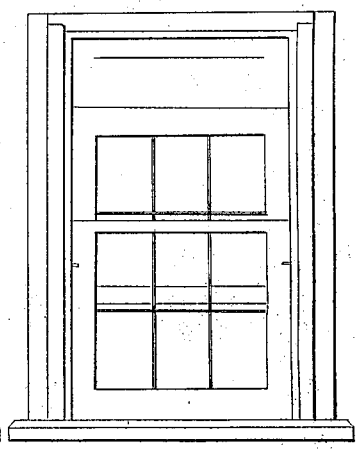


Fig. 7.

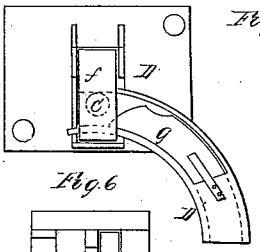


Fig. 8

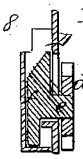


Fig. 9

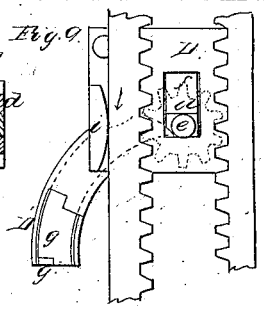


Fig. 4

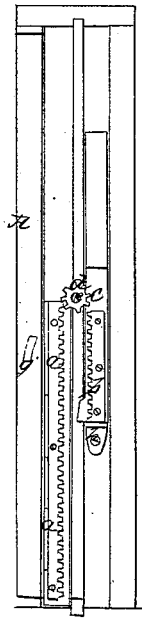


Fig. 5

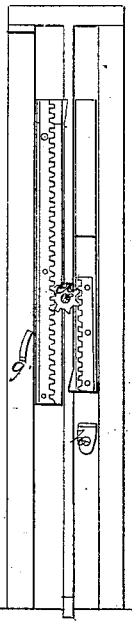
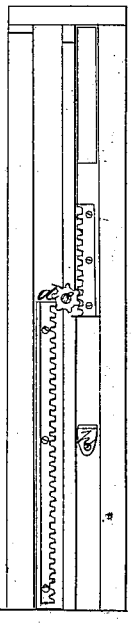


Fig. 6



UNITED STATES PATENT OFFICE.

JAMES R. BAKER, OF KENDALLVILLE, INDIANA.

DEVICE FOR OPERATING WINDOW-SASHES.

Specification forming part of Letters Patent No. **48,889**, dated July 25, 1865.

To all whom it may concern:

Be it known that I, JAMES R. BAKER, of Kendallville, in the county of Noble and State of Indiana, have invented a new and Improved Device for Operating Window-Sashes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is an elevation of a window frame and sash having my invention applied to them. Fig. 2 shows both sashes thrown up. Fig. 3 shows both sashes down. Figs. 4, 5, and 6 are views of the edges of the sashes when the latter are adjusted in the several positions represented in Figs. 1, 2, and 3. Figs. 7, 8, and 9 show the contrivances which adjust the pinion-wheels that connect the sashes together.

Similar letters of reference indicate corresponding parts in the several figures.

The object of my invention is to avoid the use of cords and weights for balancing window-sashes, and to employ in lieu thereof one or more adjustable spur-wheels, which are applied to the window-frame, in conjunction with toothed racks, which are applied to the sashes, said wheels being so arranged that by a simple adjustment the sashes can be connected together and made to counterbalance each other, or disconnected and operated independently of each other at pleasure, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings, A represents the window-frame; B, the lower sash, and C the upper sash, all of which parts may be constructed in the usual manner, my invention being applicable to window-sash which are in common use.

On each one of the vertical edges of the sash B is a rack, *a*, extending the full length of this edge, and on each vertical edge of the upper sash, C, is a short rack, *b*, which is recessed into the sash-rail and applied thereto so that its teeth will be opposite those of the rack on the sash B, as shown clearly in Figs. 4, 5, 6, and 9. The recesses *c c* in the edges of the upper sash-rail extend above their respective racks a short distance, for a purpose which will be presently described.

At the upper ends of the vertical rails of the lower sash, B, are pinion spur-wheels *d d*, which are supported by vertically-adjustable bearings *e e*, one of which is shown in Figs. 8 and 9. These bearings project from plates D D, which are recessed into the jambs or stile-posts of the window-frame, flush with the inside surfaces thereof, and are formed on sliding blocks *f f*, which are adjusted vertically by means of slides *g g*, carrying finger-pieces *g′ g′* on their outer ends.

The upper sash, C, is supported, when it is down as low as desired, upon stops *h h*, and when it rests upon these stops, as shown in Fig. 4, and pinion spur-wheels *d d* are thrown up to their fullest extent, these pinions do not engage with teeth of the racks *b b*, but can turn freely. When the sash C is in this position and the spur-wheels thrown up these wheels are opposite the recesses *c c* in the edges of the sash; consequently the sash B can be raised or lowered without moving the upper sash, C. The sash B (or, rather, its racks) is always in gear with the spur-wheels, and at all times when the sash C is not resting upon the stop *h h* its racks are also in gear with the spur-wheels *d d*, and the weight of one sash is made to counterbalance the weight of the other sash, and in this condition the sashes will remain in any position desired.

The plates D D are constructed with back rests, *i i*, for guiding the racks on both sashes and keeping these racks in gear with their respective positions. Said plates are also constructed with curved guides D′ D′, for receiving and guiding the slides *g g*, which have their acting ends beveled, as shown in Figs. 7, and 9, for the purpose of elevating and depressing the bearings *e e f f* and with them the pinion spur-wheels *d d*.

The finger-pieces of the slides *g g* project through slots which are made through the window-strips, as shown in Figs. 4, 5, and 6.

Any suitable contrivance may be applied to the lower sash for holding it down. A simple spring-latch will answer the purpose.

The operation of the sashes is as follows: Raise the sash B until the sash C rests upon the stops *h h;* then throw up the pinions *d d* into the recesses *c c* above the racks *b b*, and the sash B may be brought down again, so as to leave the window open at the top. Raise the sash B again a short distance, and then draw down the pinions *a a*, and by pulling down the sash B the sash C will be raised so as to close the window at top and bottom; or raise the sash B when sash C is upon the stops *h h*, and then throw up the pinions *a a*, and the window can be closed at top and left open at the bottom. By my invention the pinions *d* can be moved into or out of gear with the spurred racks *b b* on the sash C at pleasure, and at any time when the lower sash, B, is partially up and the sash C is down upon its stops *h* the two sashes can be connected together by dropping the pinions *d d*.

I prefer to employ a spring-stop which will catch the lower sash, B, in raising this sash, for the purpose of connecting it with the upper sash, and determining the point where the connection should be made, so that when the sash B is depressed both sashes will close their respective openings simultaneously.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The employment of one or more vertically-adjustable spur-wheels applied to a window-frame, in combination with toothed racks applied to the sashes, said parts being so arranged that the sashes can be connected together and made to counterbalance each other, or the lower sash operated independently of the other, at pleasure, substantially as described.

JAMES R. BAKER.

Witnesses:
I. H. SMITH.
O. L. WOODRUFF.